

CLAIMS

What is claimed is:

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1. An apparatus comprising:
3 one or more processors, the one or more processors configured to perform server
4 functions and switch and router functions including load balancing and
5 fail-over; and
6 a plurality of ports coupled with the one or more processors

1 2. The apparatus of claim 1, wherein said server node comprises a single printed
2 circuit board

1 3. The apparatus of claim 1, where the plurality of ports comprises four ports.

1 4. The apparatus of claim 2, wherein the printed circuit board is rack mountable and
2 the plurality of ports are accessible as connection points on the card rack.

1 5. A server block comprising:
2 a plurality of server nodes, each server node comprising a server with integrated
3 switching, routing, load balancing and fail-over functions and a plurality

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of ports, at least one port of the plurality of ports configured for connection to an external network; and
a plurality of signal paths connected with the plurality of ports of the server nodes of the plurality of server nodes, at least two of the plurality of ports of each server node of the plurality of server nodes connected with another server node of the plurality of server nodes in the server block.

- 1 6. The apparatus if claim 5, wherein each said server node of the plurality of server nodes comprises one printed circuit board.
- 1 7. The apparatus of claim 6, wherein the printed circuit board is rack mountable and the plurality of ports of each server node of the plurality of server nodes are accessible as connection points on the card rack and the server block is constructed in one card rack by interconnecting the connection points on the card rack.
- 1 8. The apparatus of claim 7, wherein the external connections of the server block are provided through an interface card in the card rack, the interface card being connected to the plurality of server nodes through connection points on the card rack.

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9. A computer network comprising:
2 a plurality of server blocks wherein each server block comprises;
3 a plurality of server nodes, each server node comprising a server with
4 integrated switching, routing, load balancing and fail-over
5 functions and a plurality of ports, and
6 a plurality of signal paths connected with the plurality of ports of each
7 server node of the plurality of server nodes, at least one signal path
8 connected with each server node of the plurality of server nodes
9 providing an external connection to a server block, and at least two
10 signal paths of the plurality of signal paths connected with each
11 server node of the plurality of server nodes being connected with
12 other server nodes of the plurality of server nodes in the block; and
13 a plurality of signal paths connected with the server blocks, at least one signal
14 path connected with each server block of the plurality of server blocks
15 providing an external connection to the network, and at least two signal
16 paths of the plurality of signal paths connected with each server block of
17 the plurality of server blocks being connected with other server blocks of
18 the plurality of server blocks.

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10. The apparatus of claim 9, wherein each server node of the plurality of server
nodes comprises one printed circuit board.

11. The apparatus of claim 10, wherein the printed circuit board is rack mountable
and the plurality of ports of each server node of the plurality of server nodes are
accessible as connection points on the card rack and a server block is constructed
in one card rack by interconnecting the connection points on the card rack.

12. The apparatus of claim 11, wherein the external connections of the plurality of
server blocks are provided through an interface card in the card rack, the interface
card being connected to the plurality server nodes through connection points on
the card rack.

13. A method of operating a first server node comprising:
receiving a request;
determining whether to service the request;
if unable to service the request, routing the request to a second server node
coupled with the first server node.

14. The method of claim 13, wherein determining whether the first server node can
service the request is based on the present load of the first server node.

- 1 15. The method of claim 13, wherein routing further includes load balancing.
- 1 16. The method of claim 15, wherein load balancing comprises:
 - 2 determining the present load of one or more other server nodes coupled with the
 - 3 first server node; and
 - 4 routing the message to the server node of the one or more server nodes with the
 - 5 lightest load.
- 1 17. A machine-readable medium having stored thereon data representing sequences of
 - 2 instructions, the sequences of instructions which, when executed by a processor,
 - 3 cause a first server node to:
 - 4 receive a request;
 - 5 determine whether to service the request;
 - 6 if unable to service the request, route the request to a second server node coupled
 - 7 with the first server node.
- 1 18. The machine-readable medium of claim 17, wherein determining whether the first
2 server node can service the request is based on the present load of the first server
3 node.

1 19. The machine-readable medium of claim 17, wherein routing further includes load
2 balancing.

1 20. The machine-readable medium of claim 19, wherein load balancing further
2 comprises:

3 determining the present load of one or more other server nodes coupled with the
4 first server node; and

5 routing the message to the server node of the one or more server nodes with the lightest
6 load.

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